Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of:	)	
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Public Safety and Homeland Security Bureau and International Bureau Seek Comment on Airborne Use of 700 MHz Public Safety Narrowband Air-Ground Channels by the United States and Canada	)	PS Docket No. 13-87
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COMMENTS OF
THE NATIONAL PUBLIC SAFETY TELECOMMUNICATIONS COUNCIL

The National Public Safety Telecommunications Council (NPSTC) submits these comments in response to the Public Notice in the above captioned proceeding.[1] In October 2014, the Commission designated eight channels in the 700 MHz narrowband public safety spectrum for communications between low-altitude aircraft and ground stations in the U.S. However, operation in the border area with Canada has been on a case-by-case basis, pending a border area agreement on such airborne use. The Commission's Public Notice seeks input on various approaches on which to base a potential agreement with Canada. In these comments, NPSTC proposes an option that maximizes the opportunity for airborne use in both the U.S. and Canada, minimizes the impact on existing U.S. public safety operations and enables interoperability for joint U.S./Canada public safety operations when needed.

[1] Public Notice, Public Safety and Homeland Security Bureau and International Bureau Seek Comment on Airborne Use of 700 MHz Public Safety Narrowband Air-Ground Channels by the United States and Canada, PS Docket No. 13-87, released March 15, 2017.

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The National Public Safety Telecommunications Council

The National Public Safety Telecommunications Council is a federation of public safety organizations whose mission is to improve public safety communications and interoperability through collaborative leadership. NPSTC pursues the role of resource and advocate for public safety organizations in the United States on matters relating to public safety telecommunications. NPSTC has promoted implementation of the Public Safety Wireless Advisory Committee (PSWAC) and the 700 MHz Public Safety National Coordination Committee (NCC) recommendations. NPSTC explores technologies and public policy involving public safety telecommunications, analyzes the ramifications of particular issues and submits comments to governmental bodies with the objective of furthering public safety telecommunications worldwide. NPSTC serves as a standing forum for the exchange of ideas and information for effective public safety telecommunications.

The following 16 organizations serve on NPSTC's Governing Board:[2]

American Association of State Highway and Transportation Officials
American Radio Relay League
Association of Fish and Wildlife Agencies
Association of Public-Safety Communications Officials-International
Forestry Conservation Communications Association
International Association of Chiefs of Police
International Association of Emergency Managers
International Association of Fire Chiefs
International Municipal Signal Association
National Association of State Chief Information Officers
National Association of State Emergency Medical Services Officials
National Association of State Foresters
National Association of State Technology Directors
National Council of Statewide Interoperability Coordinators
National Emergency Number Association
National Sheriffs' Association

[2] These comments represent the views of the NPSTC Governing Board member organizations.

Several federal agencies are liaison members of NPSTC. These include the Department of Homeland Security (the Federal Emergency Management Agency, the Office of Emergency Communications, the Office for Interoperability and Compatibility, and the SAFECOM Program); Department of Commerce (National Telecommunications and Information Administration); Department of the Interior; and the Department of Justice (National Institute of Justice, Communications Technology Program). Also, Public Safety Europe is a liaison member. NPSTC has relationships with associate members: The Canadian Interoperability Technology Interest Group (CITIG) and the Utilities Technology Council (UTC), and affiliate members: The Alliance for Telecommunications Industry Solutions (ATIS), Open Mobile Alliance (OMA), Telecommunications Industry Association (TIA), TETRA Critical Communications Association (TCCA), and Project 25 Technology Interest Group (PTIG).

Background

In October 2014, the Commission designated eight 12.5 kHz channel pairs in the public safety 700 MHz narrowband spectrum for air-ground operations of low altitude aircraft.[3] These channels support public safety operations such as emergency medical helicopter rescue and transport, law enforcement airborne assistance to officers and deputies on the ground during an incident, and fire suppression operations. In the U.S., the Commission rules limit operation on these eight air-ground channels to a two watt power level and a maximum altitude of 1500 feet.[4]

When designating the channels for air-ground public safety use, the Commission noted that the existing 700 MHz band agreements with Canada and Mexico cover only terrestrial use

[3] Report and Order, WT Docket No. 97-86 and PS Docket No. 06-229, released October 24, 2014.
[4] See section 90.531(b)(7) of the rules.

and do not include provisions for airborne operations. Therefore, in its decision, the Commission stated that it would consider applications for U.S. airborne operations on the newly-designated 700 MHz narrowband air-ground channels within 315 kilometers of the Canada or Mexico border only on a case-by-case basis, pending any future agreements on the air-ground use with Canada and/or Mexico.

In its Public Notice, the Commission advised that it has been working with the Innovation, Science and Economic Development (ISED) organization in Canada on how best to coordinate 700 MHz airborne operations along the border. These discussions to date have identified two overall approaches, either sharing use of the eight U.S. designated air-ground channels between the two countries, or for Canada to designate a separate set of channels for airborne use. Under the latter proposal, each county would have primary use of its full set of public safety 700 MHz narrowband air-ground channels. In an effort to create the best opportunities for both countries, the Public Notice requests comment on the various approaches.

The Public Notice also indicates that Canada would allow aircraft to operate at altitudes up to 10,000 feet, at least on some of its air-ground channels. NPSTC also understands there is interest in Canada of allowing up to ten watts of power on such airborne transmitters.

NPSTC Recommendation

NPSTC recommends that the Commission and ISED pursue an approach that allows public safety entities in each country the full use of their air-ground channels, minimizes any cross-border co-channel interference conflicts and makes provisions for U.S./Canada interoperability when needed for joint U.S./Canada public safety operations at the border. The

remainder of these comments address NPSTC recommendations to meet these objectives.

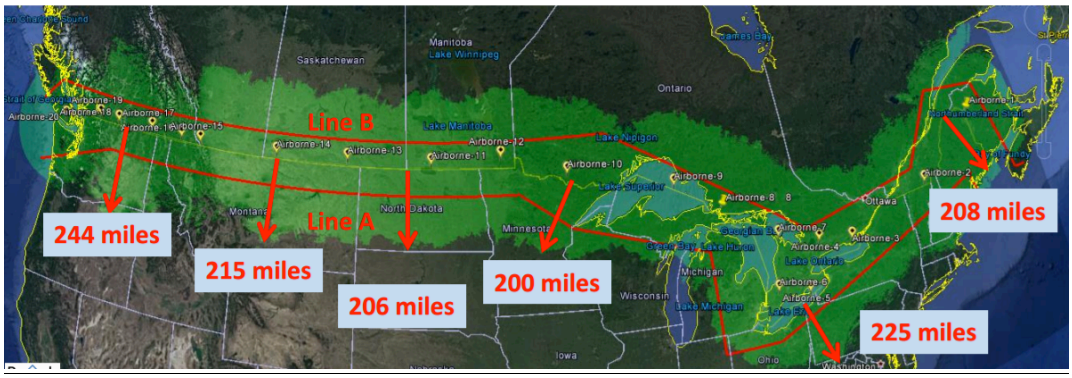
Canada Day-to-Day Air-Ground Operations.

In NPSTC's view, an agreement that establishes channels in Canada distinct from those in the U.S. for day-to-day air-ground operations would provide the best opportunity for full public safety air-ground use in each country. As the Commission points out in the Public Notice, "The required clearing distances would be a function of the maximum altitude allowed for radio-equipped aircraft using the air-ground channels." [5] Given public safety airborne operations at 700 MHz in Canada are envisioned to be allowed at up to 10 watts power and 10,000 feet of altitude, the coordination zone will be significantly greater than the standard zone for terrestrial operations defined in the U.S. by "line A."

NPSTC's discussions with others in public safety and industry on this issue indicates that an airborne signal operating with 10 watts and 10,000 feet of altitude at the U.S./Canada border could travel into the U.S. over a relatively vast area. The following diagram, shared with NPSTC by representatives of the State of Maryland and professional engineer Mr. Robert Lopez, depicts this situation.

[5] Public Notice at page 2.

Air-to-Ground 700 MHz Propagation Calculated to -128 dBm Effective Sensitivity



This depiction indicates the broad swath of area even beyond Line A within which such airborne signals in Canada could potentially impact co-channel operations in the U.S. and would need to be coordinated if channels were shared. As shown in the diagram, this area extends 225 miles from the U.S./Canada border in much of the populated northeast corridor and up to 244 miles out west, encompassing the State of Washington. Therefore, NPSTC believes greater use in both countries would be enabled if the Commission could encourage ISED to choose distinct air-ground channels in Canada from those in the U.S. for day-to-day airborne operations.

Fortunately, slight differences in the upper 700 MHz bandplan between the U.S. and Canada provides an option that could meet this objective while minimizing any public safety co-channel conflicts. The U.S. upper 700 MHz bandplan includes two one-plus-one MHz blocks of spectrum designated as "guardbands" and administered for use by bandmanagers. These two blocks are 757-758/787-788 MHz (block A) and 775-776/805-806 MHz (block B).[6] Notably,

[6] To avoid any confusion based on terminology, it is important to recognize that both "guardband" blocks A and B are

the 775-776/805-806 MHz spectrum designated as the B block guardband in the U.S. is already designated for public safety use in Canada.

Based on NPSTC research of licenses in the U.S. as addressed in more detail below, the 775-776/805-806 MHz B block guardband has minimal use in the U.S. Therefore, NPSTC recommends that ISED and the Commission consider a border agreement option in which day-to-day air-ground public safety operations in Canada would be located on select channels in the 775-776/805-806 MHz band. That approach would avoid any co-channel conflicts between public safety air-ground operations in the U.S. and Canada, and could allow relatively full use of the respective air-to-ground channels in each country.

As noted above, the 775-776/805-806 MHz spectrum has minimal authorized use in the U.S. NPSTC researched licensing on both the 757-758/787-788 MHz (A block) and 775-776/805-806 MHz (B block) guardbands using the Commission's Universal Licensing System (ULS) database. The ULS database includes a service code "WX" that covers bandmanager licenses in both the 757-758/787-788 MHz A block guardband and the 775-776/805-806 B block guardband spectrum. Using this "WX" service code as the search criteria, the ULS shows 82 bandmanager licenses on the A block guardband at 757-758/787-788 MHz but NO bandmanager licenses on the B block guardband at 775-776/805-806.

As part of its license research, NPSTC took the additional step of searching the ULS by frequency rather than by service code. That search yielded one low power test license covering practically all current and former TV channels and eight broadcast auxiliary licenses for TV studio-transmitter links, TV inter-city relay links, or TV translator relays.

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distinct from the 700 MHz band guardband spectrum licensed to FirstNet.

Of the eight broadcast auxiliary licenses, four are in former TV channel 64 (770-776 MHz) and four are in former TV channel 69 (800-806 MHz). Half are in locations far removed from the predicted impact zone of any potential Canada air-ground usage of selected 12.5 kHz channels in the 775-776/805-806 MHz spectrum. Facilities for these four broadcast auxiliary licenses are located in Grundy, VA; Lafayette, LA; Owensboro, KY; and Cleveland, TN. The four remaining broadcast auxiliary licenses are for facilities in La Grande, OR; Ascutney, VT; Grants Pass, OR; and Van Wert, OH. Further study would need to be made to determine what, if any, impact Canada air-ground operations on select channels in the 775-776/805-806 MHz would have on these four broadcast auxiliary authorizations closer to the border. Given the facilities are essentially fixed links, NPSTC believes that further Commission analysis could show little, if any, impact.

The ULS frequency search for 775-776/805-806 MHz also showed four public safety system licenses. Each of these licenses has multiple general use channel pairs in current public safety spectrum outside the block B guardband, plus one channel pair located within the 775-776/805-806 MHz block B guardband spectrum. These are likely to be systems that were early deployers before the Commission modified the 700 MHz bandplan in 2007.[7]

In the 2007 decision, the Commission revised the 700-MHz-band plan to consolidate current public safety narrowband channel blocks and create public safety broadband spectrum. This decision also shifted the entire public safety allocation down by one MHz and relocated the guardband

[7] Second Report and Order, Implementing a Nationwide, Broadband, Interoperable Public Safety Network in the 700 MHz Band; Developmentof Operational, Technical and Spectrum Requirements for Meeting Federal, State and Local Public Safety Communications Requirements Through the Year 2010, PS Docket No. 06-229, WT Docket No. 96-86, adopted July 31, 2007 and released August 10, 2007.

bandmanager spectrum within the band. As a result, the 775-776/805-806 MHz block that had been part of the original narrowband public safety spectrum in the U.S. became guardband block B spectrum. Any licensees still using narrowband channels in spectrum no longer within the revised public safety narrowband blocks have or will transition to channels consistent with the revised bandplan.

NPSTC understands the Commission would need to consider any future impact of Canada air-ground use of the 775-776/805-806 spectrum with respect to these four public safety licensees. If these four licensees are actually still operating on the one channel pair located in the spectrum re-designated as the B block guardband, NPSTC suspects any impact to these four licensees could be avoided by judicious selection of the Canada air-ground channel locations within the B block guardband spectrum. The one-plus-one MHz of B block guardband spectrum could accommodate 80 channel pairs with 12.5 kHz channels, whereas the Public Notice implies that Canada would designate only eight 12.5 kHz channel pairs for air-ground operation.[8]

Interoperability for Joint U.S./Canada Operations

Designating different channels than those in the U.S. for day-to-day air-ground use in Canada has significant benefits in minimizing ongoing border coordination. However, additional provisions will need to be made for interoperability. Therefore, NPSTC recommends the Commission and ISED also address provisions for Canada to use one or more of the U.S. designated air-ground channels only for joint U.S./Canada public safety operations near the border. Such use should be beneficial for joint U.S./Canada rescue or law enforcement

[8] See Public Notice at footnote 8.

operations, for example, in the event an incident at the Great Lakes requires public safety involvement by both countries.

NPSTC recommends any Canada use of the U.S. designated 700 MHz band air-ground channels for joint operations be limited to the same parameters as allowed in the U.S., i.e., a two watt power limit at a maximum altitude of 1500 feet. NPSTC further recommends that one of the channels designated for U.S./Canada joint operations be the 700 MHz air-ground channel at 774.61875 MHz. This channel is designated in public safety by the common channel designation "7AG88" and is used for landing zone coordination.

Conclusion

NPSTC recommends the Commission and ISED give serious consideration to designating up to eight air-ground 12.5 kHz channels selected from the 775-776/805-806 MHz band for day-to-day public safety air-ground use in Canada. This spectrum is already designated for public safety use in Canada. NPSTC believes its selection for day-to-day Canada air-ground operations would enable both countries to enjoy full use of its public safety air-ground spectrum with minimal ongoing border zone coordination. In the U.S., the 775-776/805-806 MHz band is designated as the B block guardband. While the B block guardband was envisioned for use by bandmanagers, a check of the Commission's ULS database indicates no B block guardband licenses exist. As addressed in these comments there is minimal use of this spectrum by other licensees as well, for which some additional study may very well resolve any potential impact.

With distinct channels recommended for day-to-day Canada air-ground public safety use, additional provisions would be need to be made for interoperability during any joint

U.S./Canada public safety operations involving air-ground communications. Therefore, NPSTC also recommends the Commission and ISED address provisions for Canada to use one or more of the U.S. designated air-ground channels only for joint U.S./Canada public safety operations near the border. The U.S. air-ground channel at 774.61875 MHz known in in public safety by the common channel designation "7AG88" is used for landing zone coordination and should be included in provisions for joint U.S./Canada public safety operations.

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